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10/706,162

11/12/2003

Farid Nemati

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08/03/2006

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EXAMINER

JACKSON JR, JEROME

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**AUG 03 2006**

**GROUP 2800**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/706,162  
Filing Date: November 12, 2003  
Appellant(s): NEMATI ET AL.

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H.C. Chan  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 3/3/06; 4/24/06; 10/21/05 appealing from the Office action mailed 5/26/05. Initially it is noted the IDS filed 3/3/06 has not been

considered because it lacks certification under 37 CFR 1.97(e)(1)(2). Specifically it lacks the required statement. It will be placed in the file but not considered.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appellant states in the supplemental amendment of 4/24/06 that 10/794,843 is a related case under appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is substantially correct. Claim 4 should not be objected to as it is also rejected under 35 USC 102/103 over Nemati '359. The objection was merely a "typo" error.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,462,359

Nemati et al

10-2002

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-6,15,19-22,24,26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nemati '359.

Nemati shows in figure 5a thyristor based memory cell design including side by side base regions, a first capacitively coupled control port 530 and a second capacitively coupled control port 542. The first port couples a first "signal" to the first base and the second port couples a second "signal" to the second base. The recitation "for coupling...as a function of temperature" is a statement of intended use which does not structurally distinguish the claims over the applied art which can function in the same manner. Note that column 6 lines 32-51 state that the tunnel dielectric node is also a "capacitively coupled" node. Note also the statement "control...as a function of temperature" is intended use, and broad, and does not in any way specifically or structurally distinguish the claims over Nemati. Notwithstanding the "intended use", there is no exact recitation of specific "control" or "function" which would in any way structurally or functionally distinguish over Nemati. Note also that Nemati discusses "improved stability under... adverse conditions, such as...temperature variations" (col.4).

Claim 1 is anticipated or at least obvious depending on one's interpretation of the "functional language" in the claim. For anticipation see also figure 8 where a first control port 830 is capacitively coupled to the p-base and a second control port defined by the contact to the n-base is configured and arranged for coupling a second signal to the n-base and the second signal is adapted to control holding current (col. 7 lines 17-40). Claim 1 is again rejected. Claim 2 is rejected as "circuit arrangement" is broad and does not structurally distinguish the claim over the "circuit arrangement" of Nemati sending a "control" signal to the gate control port 530, or in figure 8 to the n-base "control port". Claim 3 is rejected as the transistor 850 coupled to the thyristor comprises a "temperature sensing circuit". Claims 4 and 5 are rejected as the circuit of figure 8 appears to operate in the same manner to provide temperature stability. See column 8. Claim 6 is rejected as the port 830 of figure 8 is connected to a "circuit" and consequently connected to a "signal" which can maintain a conductance state because it is a "switch" port, and the second port is connected to a fet "circuit" which can control a holding current. Claim 15 is rejected as the magnitude of the "signal" or voltage to the n-base at least partly determines the depletion in the n-base. Claim 19 is rejected as above. The recitation "as a function of temperature" does not distinguish over the function of Nemati which is stated to stabilize the device from temperature variations. Claims 20-22 are rejected as the Nemati thyristor is "thin" and capacitively coupled. Claims 24,26 and 28 are rejected as figure 7 shows a low-lifetime region. It is anticipated or obvious structure to include a low-lifetime region in the n-base in the various embodiments of Nemati to improve switching time.

### **(10) Response to Argument**

Initially, it is noted that appellant has not addressed the rejection of the claims in view of figure 5a of Nemati as shown in the above rejection which mirrors the non-final and final rejections.

Moreover, appellant has not refuted the examiner's position that the structure of Nemati '359 can function in the manner claimed. It has been well established that "functional language" in claims drawn to structure do not justify patentability over anticipating structure that can function in the same manner. See *In re Swinehart* 169 USPQ 226, *Ex parte Minks* 169 USPQ 120 and *In re Pearson* 181 USPQ 641 where it was decided that functional language, statements of intended use, or mere labels do not structurally distinguish claims over anticipating prior art.

Appellant has merely argued (page 5) that "Nemati does not teach that the signal applied to the gate of the NMOSFET is coupled to the second base region, as recited in claim 1". This argument is not convincing of patentability because figure 8 shows that the same NMOSFET 850 is directly coupled to second base region 814 as shown by the contact region of the source/drain on the bottom of the n Base 814. The gate signal is thus "coupled" to the n Base 814 through the source/drain contact as shown in the figure. Appellant is apparently reading too much into the claim language and apparently arguing that the claim requires a direct capacitance control port connection. Claim 1 does not state such a direct "capacitance" port. It merely states "a second control port configured and arranged...". The transistor 850 contact to the n Base 814 comprises a "second control port".

In the last paragraph of page 5 and the first of page 6 appellant states the NMOSFET is “coupled” to the thyristor but the “gate signal” is not externally provided. First, the claim does not state “gate signal”; it states “second signal”. The “second signal” of Nemati ‘359 is coupled to the n Base 814 through the transistor 850 which clearly defines an “externally provided” transistor and thus a signal “externally provided”. Moreover, Nemati also states that the gate connection does not have to be to the p Base but can be “externally provided”. See column 7 lines 35-40 “the gate of the NMOSFET can be independently controlled rather than being connected to the p-Base”. Appellant moreover states the same on page 6, second paragraph. The arguments that Nemati’s “structure” or “signal” or “function” is “significantly different” is unpersuasive because the above analysis shows that the Nemati structure and function is not in any way “different” from the claim language. The examiner did point out in figure 8 the contact of the NMOSFET 850 to the n Base 814 comprises the “second control port”; and additionally, in figure 5a the tunnel node 542 comprises the “second control port”.

Appellant again argues in (2) on page 6 that Nemati does not disclose an external signal for...”. Again the functional language does not structurally distinguish over Nemati as shown above and furthermore, contrary to appellant's arguments, the second control ports of Nemati do function to “control” holding current or forward blocking voltage. See column 7 lines 17-39 of Nemati which specifically states that the NMOSFET functions to control holding current and provide temperature stability: “ the NMOSFET passes only a very small current and the holding current of the thyristor is

acceptably low....and provides high stability for the blocking state of the thyristor against high temperature and disturbances.”

On page 7 appellant argues claims 3-5 and states the limitation “temperature sensing circuit” should make the claims patentable. This argument is not convincing as the NMOSFET 850 of Nemati comprises the “temperature sensing circuit”. Moreover appellant has not shown that the signal from the NMOSFET is not a function of the temperature of thyristor. Appellant merely states that Nemati does not explicitly state so. That argument is not persuasive of patentability. The NMOSFET “circuit” of Nemati provides temperature stability and accordingly can and does function in the manner claimed. There is no contrary proof.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

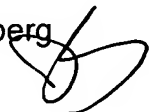
Respectfully submitted,

Jerome Jackson

  
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